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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/869,321 | 10/18/2001 | Yanling Zhou | 211598US2 | 1536 |

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EXAMINER

PAIK, SANG YEOP

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

3742

DATE MAILED: 01/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/869,321

Applicant(s)

ZHOU, YANLING

Examiner

Sang Y Paik

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 7, 9-11 and 14-16 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Morita et al (US 5,118,983).

3. Claims 1, 2, 4, 7, 8, 10, 14, 16, 19, 21 and 24 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Allen (US 4,057,707).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3, 9, 11, 15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen (US 4,057,707) in view of Lorenze et al (US 4,960,978) or Kicherer (US 4,527,050).

Allen discloses all the structure claimed including a heating element comprising one or more circuits arranged on a ceramic substrate with an insulation layer comprising oxide glass material that covers the two or more heating circuits in a lump. However, Allen does not disclose the ceramic substrate made of a nitride ceramic or a carbide ceramic.

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Lorenze et al or Kicherer shows a ceramic substrate made of a nitride ceramic which can provide a good thermal conductivity that can also withstand a high temperature.

In view of Lorenze et al or Kicherer, it would have been obvious to one of ordinary skill in the art to adapt Allen with a nitride ceramic that can provide a good thermal conductivity.

6. Claims 5, 6, 12, 17, 18, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen (US 4,057,707) in view of Ishiguro (US 5,321,386) or Paquet et al (US 5,822,675).

Allen discloses all the structure claimed except the insulation covering made of a heat resistant resin material such as a polyimide resin or a silicone resin.

Ishiguro shows that it is known in the art to use a glass material or polyimide resin material as the protective insulating layer to a heating resistor to protect the resistor since such material provides a good heat resistance as well as liquid leakage protection. Paquet et al also shows that a silicone resin provides a good electrical insulation that can withstand a high temperature.

In view of Ishiguro or Paquet et al, it would have been obvious to one of ordinary skill in the art to adapt Allen with the insulating cover made of a polyimide resin or a silicone resin to protect the heater that can also provide a good heat resistance as well as good electrical insulation.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen in view of Lorenze et al or Kicherer as applied to claim 3 above, and further in view of Ishiguro (US 5,321,386) or Paquet et al (US 5,822,675).

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Allen in view of Lorenze et al or Kicherer discloses all the structure claimed except the insulation covering made of a heat resistant resin material.

Ishiguro and Paquet et al both disclose that it is well known in the art that resin material such as polyimide resin or silicone resin provides a good thermal resistance as well as good electrical insulation. In view of Ishiguro or Paquet et al, it would have been obvious to one of ordinary skill in the art to adapt Allen, as modified by Lorenze et al or Kicherer, with a heat resistance resin material as the insulation cover to further protect the heater.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y Paik whose telephone number is 703-308-1147. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teresa Walberg can be reached on 703-308-1327. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3463 for regular communications and 703-305-3463 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.

S. Paik

Sang Y Paik
Primary Examiner
Art Unit 3742

syp
January 14, 2002